



BROOKHAVEN NATIONAL LABORATORY





Brookhaven
National
Laboratory

PUBLIC SPEAKING SKILLS

One of the most important skills in
life one needs to master.

Theodore Sampieri
ESOL Coordinator

WHY DO WE NEED TO PRESENT?

- Communicate data
- Make an impact in our field(s)
- Conferences, funding and performance review
- FEEDBACK- from our colleagues, the audience, mentor, and other postdocs
- Meet future collaborators
- To obtain a job
- 90% POSTDOCS will be required to present their work/ discoveries

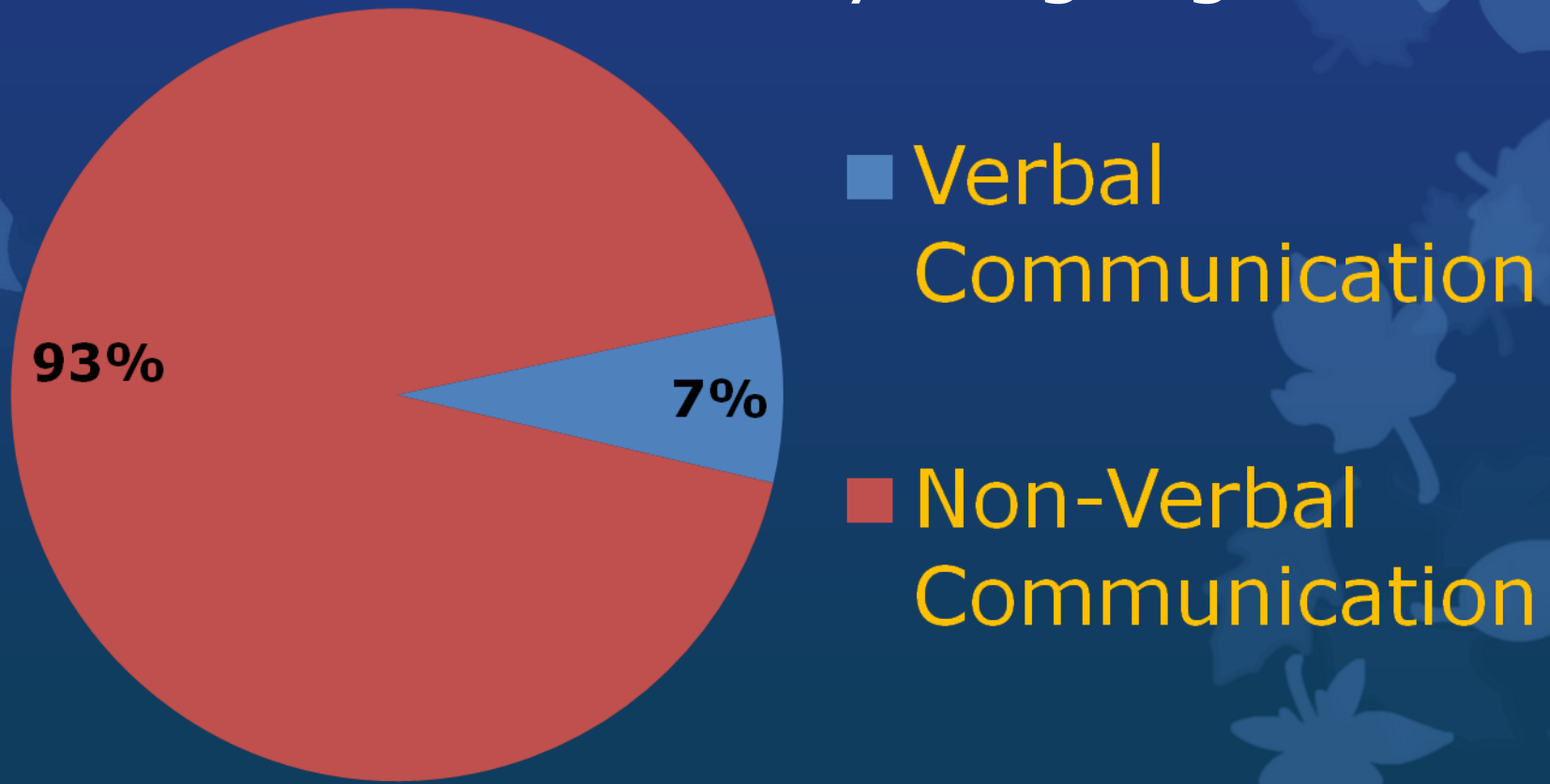
WHY ARE MANY SCIENTIFIC TALKS BAD, BORING, AND DULL??



WHY ARE MANY SCIENTIFIC TALKS BAD, BORING, AND DULL??

- Lack of preparation
- Speaker lacks strong public speaking skills
- Unable to distill the importance of the data
- Unable to individualize research for your target audience

UCLA researchers submit: Only **7%** of our credibility with listeners comes for the actual words we speak. While **93%** of it comes from our non-verbal communication and body language.



HOW DO WE PREPARE FOR A GREAT SEMINAR?

- Know the type of talk you want to conduct.
- Have knowledge of your audience (*size, professional background, and expectations*).
- Time allowed for the talk. (*30 minutes means 30 minutes!*)
- Too many slides / no good!
 - General rule: 1+ min/slide
- **Time on task** (T.o.T.) ! Planning.



ILLUSTRATIONS BY MICHAEL RAMUS

*It's a capital crime to exceed
your allotted time*

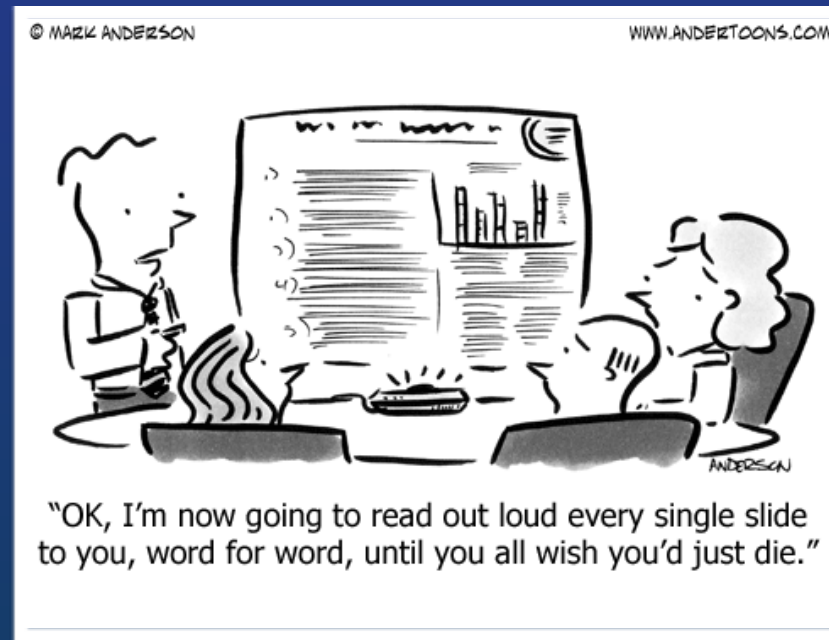
Be an Effective Storyteller

- Prepare material that is logical- tell a story, cover to cover.
 - What problem are you trying to solve?
 - Why should people care?
 - What is new? What is the impact?



COMMON MISTAKES

- How often have you attended a presentation- only to find that you are constantly reading slides that are too overcrowded with words?



- You say you need to put everything on the slide so you or the audience won't forget anything
- **Remember:** Audience will only remember 3 main points at the end

Setup Your Story with a Good Introduction

- Short talk: Stick to only one story
- Long talk: *May* include an overview
- **Meaningless overview**
 - Introduction
 - Results & Analysis
 - Conclusion & Future Work
- **Good overview**
 - The challenges of artificial photosynthesis
 - Using nanostructured materials to reduce cost
 - Photoelectrochemical measurements
 - Summary of efficient materials tested
- By the end of this talk you will understand why...

- **Talk** about your methods and your approach
- **Submit-** results, graphs, charts, and analysis
- **Summary**—where you are going?
What is your direction and or belief?
- You have to have **continuity**. Your slides should be able to flow *smoothly and logically*.

- One needs to have **effective transitions**. Slides should lead into one another.
- THEN **PRACTICE** and **REVIEW** ON YOUR OWN.
- USE FRIENDS OR FAMILY IN ORDER TO OBTAIN FEEDBACK.
- **DON'T MEMORIZE YOUR SPEECH!** BECAUSE YOU WILL NEVER BE NATURAL.
- **KNOW THE FACTS**, BUT NOT WORD TO WORD!
- YOUR SLIDES SHOULD GIVE THE STORY AWAY, YOU HAVE TO EXPLAIN THE SLIDES.

Don't Give In To Powerpoint Poisoning



SLIDE PREPARATION

- 3-7 bullets per slide, spell check, animate, but don't over do it!
- 1 slide per minute. Data slides 2-3 minutes.
- Just the critical aspects of your work
- Same color patterns/ don't get flashy
- Double and triple check
EVERYTHING!

DESIGNING SLIDES

- BIG clean fonts (20 point should be the SMALLEST)
- Use CLEAN backgrounds – Your data should be the focus.
 - Black on white is easiest to read for *scientific talks*
 - Use **color** in diagrams, schemes, graphs, data
 - Color in background accents, for emphasis in text, title

DESIGNING SLIDES

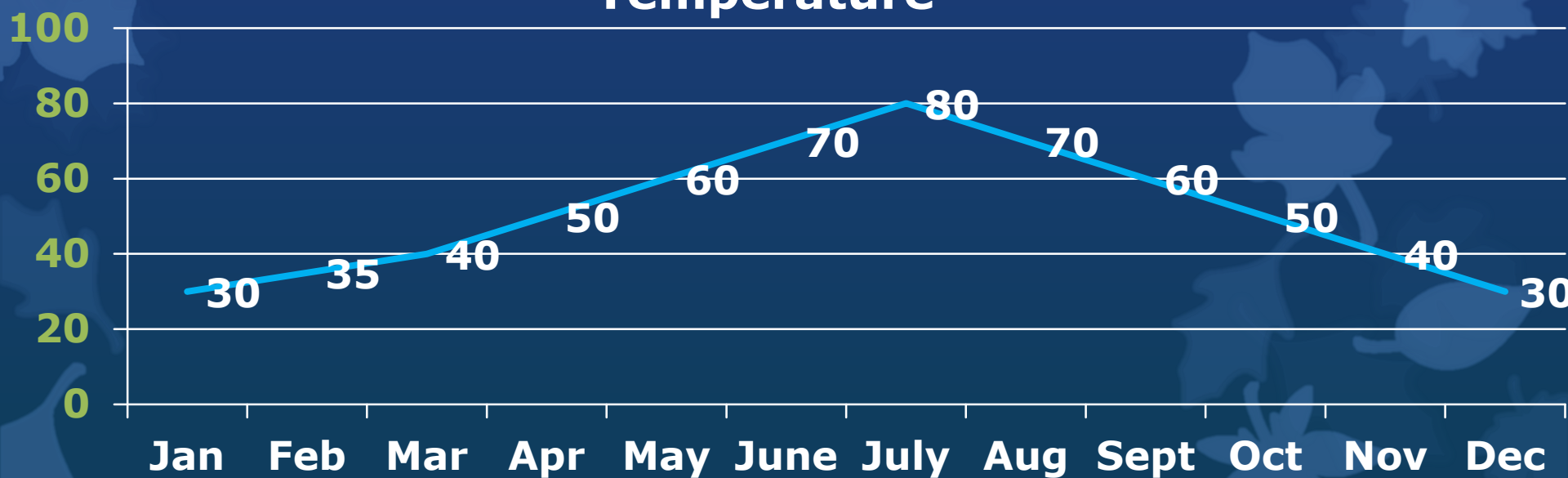
- Don't clutter slides unnecessarily
 - One idea per slide, avoid sentences
 - Use equations sparingly (*even if you're a theorist*)
 - Use animations and sound effects sparingly but effectively

Not all projectors are created equal

Don't use colored fonts on a colored background

Avoid using colored backgrounds unless you have a strange compulsion

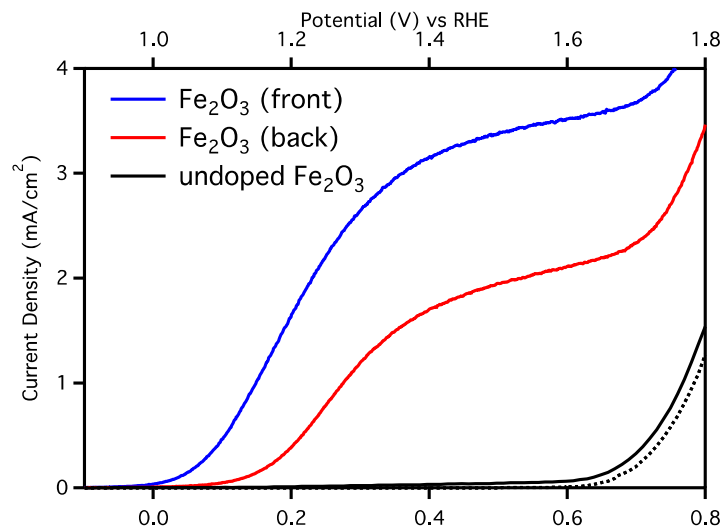
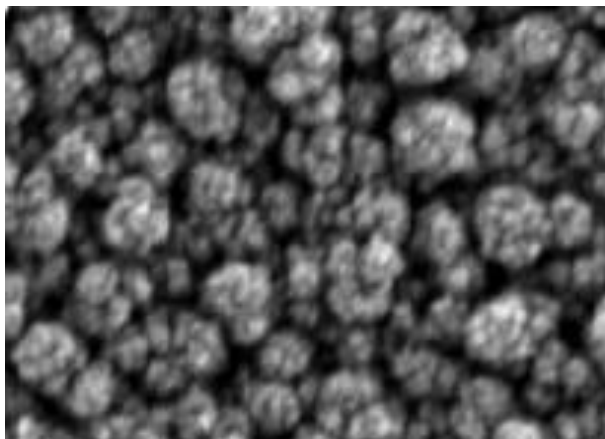
- Select what data to present
- Select sharp **colors that are vivid**
- **Label tables or figures** that you are presenting- Data should speak for itself
- Always explain X and Y axis and variables in the graph. ***Example :*** **Temperature by month**
Temperature



Preparing Data

- Powerpoint was designed for *business* not *science*
- Use thick lines and dark colors only (don't use Excel defaults!)
- Use Origin or Igor- data processing programs
- LABEL all curves (avoid legends)
- NEVER more than 2 graphs per slide
- Always *introduce* the graph: “Y vs. X acquired by Z method”
- *Explain* what the graph represents
- Always include a scale bar on images

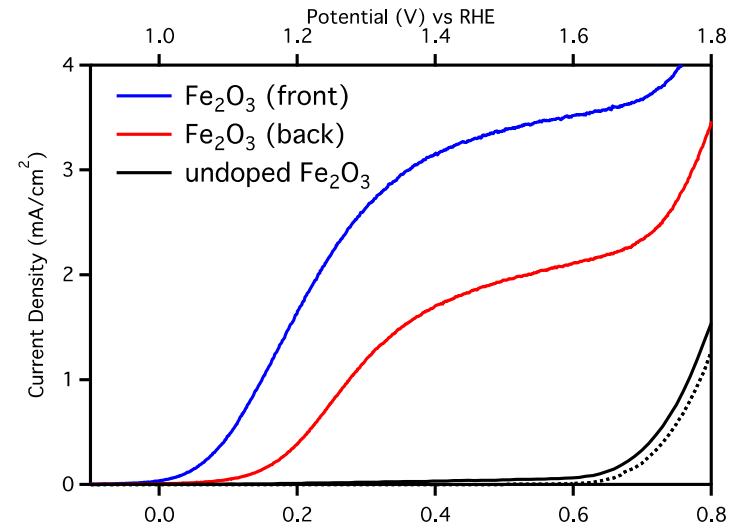
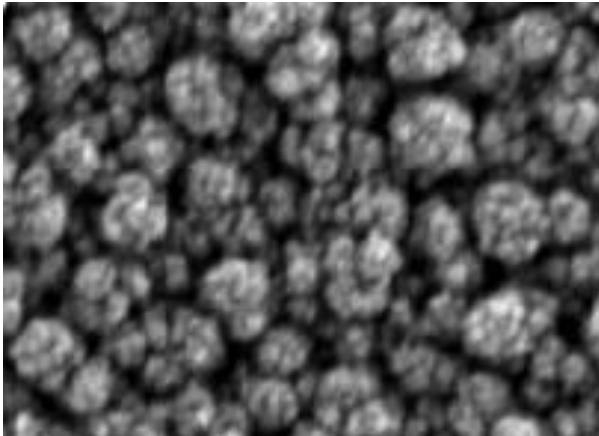
Results



- The SEM image of iron oxide shows dendritic cauliflower-like features that improve surface area.
- Doping iron oxide with silicon improves the photocurrent density significantly.
- The front side illumination of Fe₂O₃ displays higher efficiency.

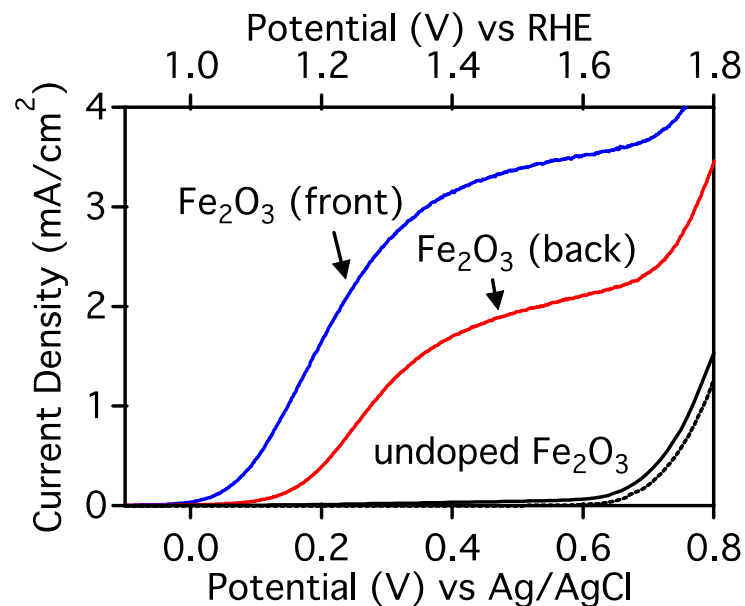
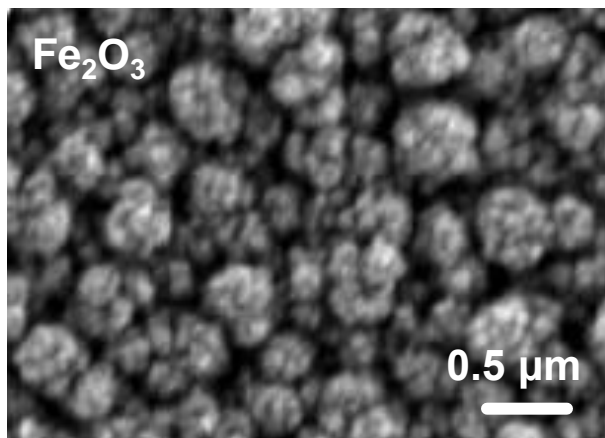
What is wrong with this slide?

Results



- Meaningless title
- Text too small
- Unlabeled axis or axis too small to read
- Unlabeled traces
- At least they aren't Excel plots
- No scale bar on image
- Too wordy

Enhanced Water Oxidation by Si Doped Fe_2O_3

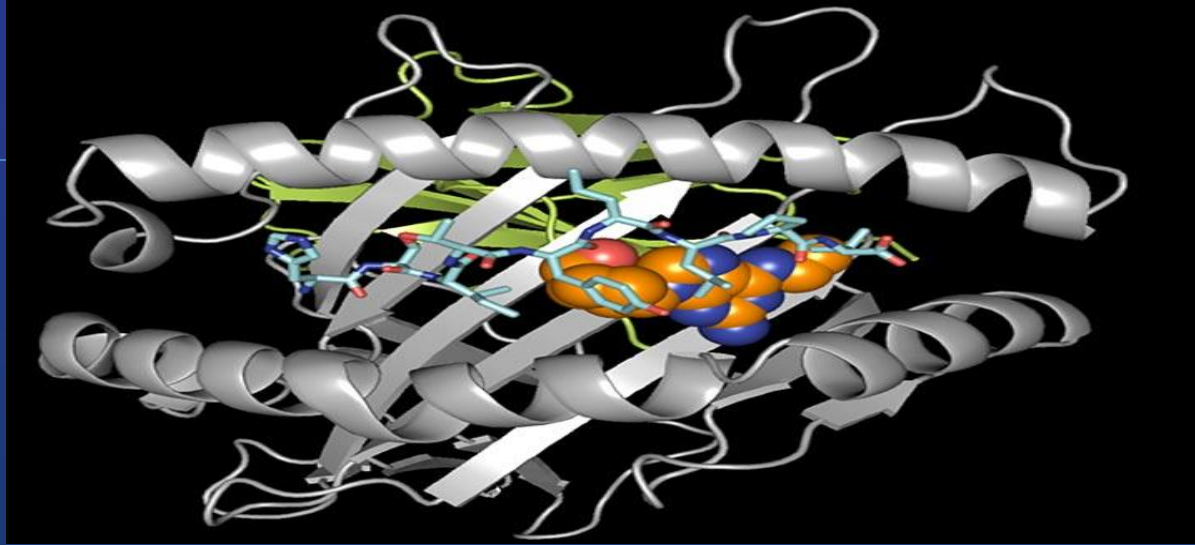


- Dendritic cauliflower-like features improve surface area
- Si doping enhances photoelectrochemical performance
- Front side illumination of Fe_2O_3 is more efficient

Art can illustrate a point- *a picture is powerful.*

Indicate data source- cite work.

Create a visual balance. Text/image.



- ❑ The HIV/ AIDS drug abacavir (orange, blue and red spheres) interacts with a protein (grey) made by a particular gene that causes a hypersensitivity to the drug.
- ❑ The protein "shows" the body's immune system a peptide (light blue) it has never seen, causing an allergic reaction.

WORK CITED

- **Structure Helps Yield Drug "Hypersensitivity" Tests for Patients**
- **By Laura Mgrdichian. Brookhaven National Laboratory**

Take Home Messages

- ❑ 1) **T.O.T.-** Time on Task. Don't go over the allowed time!
- ❑ 2) Tailor your talk for your audience.
- ❑ 3) Explain “your story” and be animated while doing so!
- ❑ 4) Deliver clear and concise slides and diagrams.
- ❑ 5) Proofread, practice and review.

PART II

Giving the Presentation

Statistically speaking:

"At a funeral, the average person would rather be in the casket than giving the eulogy."

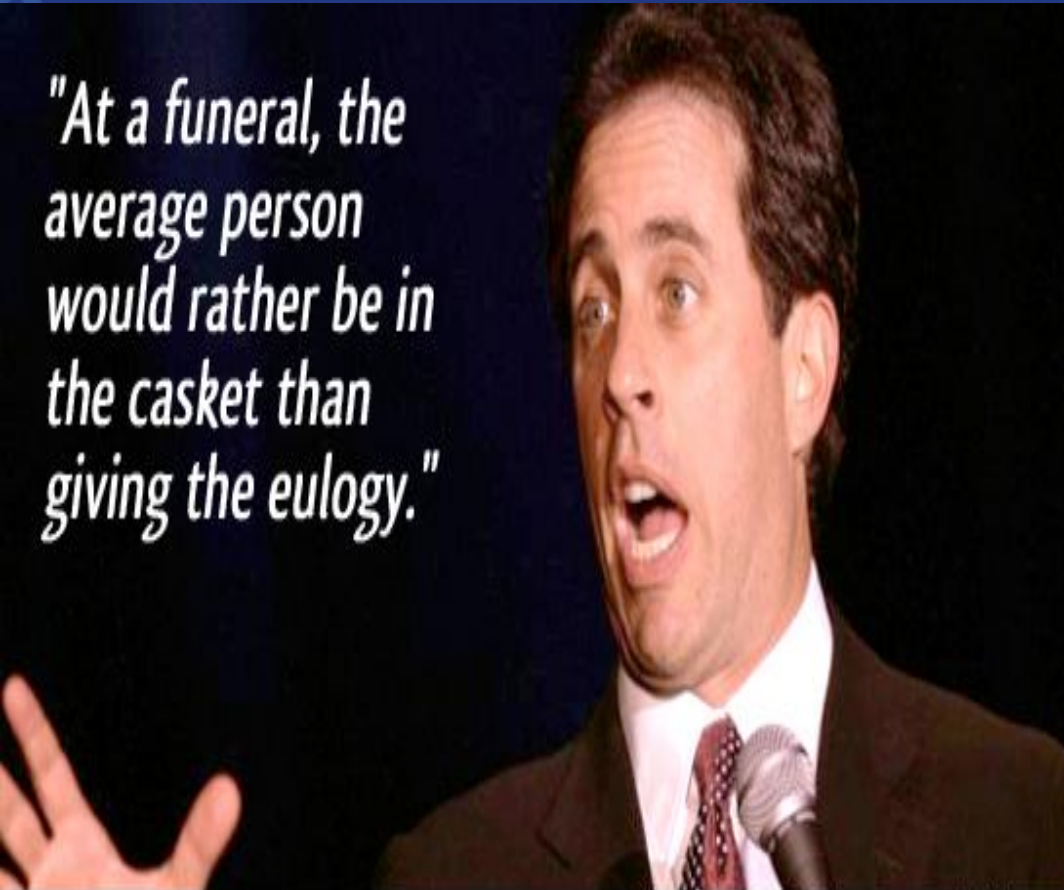
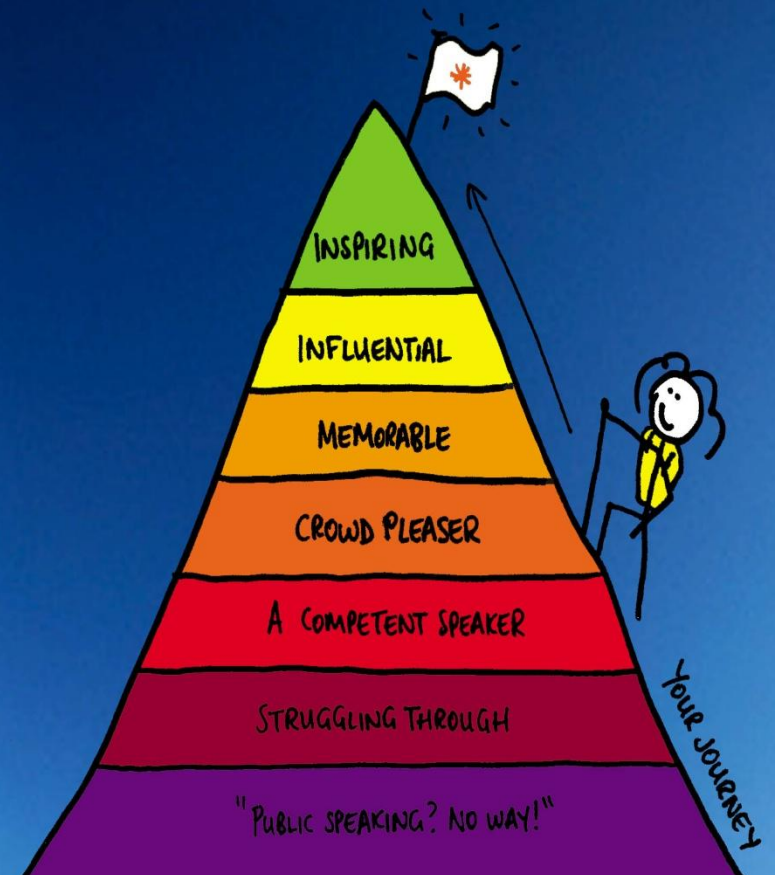


Photo Evan Agostini as seen on AVClub.com



PART II

GIVING THE PRESENTATION

- Keep talk simple short and concise.
- No paragraphs in slides!
- Speak clearly, with conviction, raise your voice.
- Show animation, convey the message in a very powerful way. **Be enthusiastic!**
- **MAKE EYE contact!!!!** Very important, talk directly to the person!!! Look them in the eyes! It makes *people pay attention.*

- Engage the audience if possible.
- *Ask questions in order to capture their attention.*
- **NEVER SIT DOWN!!!!** Worst thing you can do. *Maintain good body language, move around.*
- **Never read from notes.** You'll lose the focus of the audience.

- You should guide the talk. **Don't rush!**
- Practice. Time yourself, have a good pace.
- **TIME ON TASK:** It's a strike against you, if you don't listen to the directions that you were given.
- **Example:** *30 minutes allowed and you present for 45 minutes.*
- You need to be **effective with the time** you have.

Speak to the audience, don't scream!

- Face the audience, never turn your back on the audience.
- Don't read unless quoting something.
- You can *stop briefly time to time*. Let the audience understand and absorb the data.
- Use **laser point effectively**. Don't be relentless with it!



- **Don't keep your hands in your pockets!!!** It shows you are nervous.
- Use your **hands to be animated**, describe major segments.
- *Allow questions to be ask!* Don't interrupt.
Repeat the questions, so people in the back of the room can hear!
- Be yourself! Calm, cool, and collective. Change something about yourself if necessary. *(style, clothing, or appearance)*

Control- *The 6 Human Emotions.*

POSITIVE:

- Happy- (*joyful, cheerful, and enthusiastic*).
- Attempt to display this.

NEGATIVE:

- Fear
- Sad
- Disgusted
- Surprised
- Anger

Surprise



Anger



Happy



Sadness



Disgust



Fear

YOU HAVE TO BE AN ACTOR WHEN PRESENTING

- Capture the people for the entire duration of the delivery.
- Performance, has to be memorable.
- Be active and an actor!



